

What is claimed is:

1. A surface-mounting type optical device comprising:
a light-emitting member that is attached at the bottom of
the main body of the optical device a portion of which is inserted
in the engaging hole of a substrate, and that emits light in
the interior direction of the substrate;
an electrode member that is led out from the side of the
main body of the optical device, is connected to a pattern formed
on the surface of the substrate, and electrically connects the
pattern and the light-emitting member; and
a step portion that is formed in part of the main body of
the optical device, and engages the substrate.
- 15 2. The surface-mounting type optical device according to
Claim 1, wherein the step portion is formed on the side of the
main body of the optical device, which is opposite the side thereof
from which the electrode member is led out.
- 20 3. A surface-mounting type optical device comprising:
a light-receiving member that is attached at the bottom
of the main body of the optical device a portion of which is
inserted in the engaging hole of a substrate, and that receives
light emitted from the interior direction of the substrate;
an electrode member that is led out from the side of the
main body of the optical device, is connected to a pattern formed
on the surface of the substrate, and electrically connects the
pattern and the light-receiving member; and
a step portion that is formed in part of the main body of
the optical device, and engages the substrate.

4. The surface-mounting type optical device according to
Claim 3, wherein the step portion is formed on the side of the
main body of the optical device, which is opposite the side thereof
5 from which the electrode member is led out.

5. A surface-mounting type optical device comprising:
a light-emitting member that is attached at the bottom of
the main body of the optical device a portion of which is inserted
10 in the engaging hole of a substrate, and that emits light in
the interior direction of the substrate;
a step portion that is formed in part of the main body of
the optical device, and engages the substrate; and
a fixing electrode that is formed on the step portion, is
15 connected to a pattern formed on the surface of the substrate,
and electrically connects the pattern and the light-emitting
member.

6. A surface-mounting type optical device comprising:
20 a light-receiving member that is attached at the bottom
of the main body of the optical device a portion of which is
inserted in the engaging hole of a substrate, and that receives
light emitted from the direction of the interior of the substrate;
a step portion that is formed in part of the main body of
25 the optical device, and engages the substrate; and
a fixing electrode that is formed on the step portion, is
connected to a pattern formed on the surface of the substrate,
and electrically connects the pattern and the light-receiving
member.